Ground Based Laser Induced Fluorescence Imaging (TechID 1999)

This technology consists of a hand-held survey tool and an airborne system using laser-induced fluorescence techniques for the detection of uranium, heavy metals, organic compounds, and vegetation stress due to uptake of contaminants. Laser light is used to "excite" uranium oxide molecules that may be present as a surface contaminant. Energy is then released from the molecules in the form of fluorescence, which is then detected and displayed on a monitor attached to a laser. The laser can be operated in a panning motion to survey large areas quickly, or used to survey discreet two foot by two foot areas at a time. Unlike physical swipes, which must be collected from the actual surface being surveyed, the LIF instrument can be operated up to 10 meters away from the surface being studied.

Developers:

- US DOE, Special Technologies Laboratory, Santa Barbara, CA

Applications:

- Detection and measurement of uranium on a wide variety of surfaces for hot spot identification for decontamination and decommissioning
- Detection and measurement of uranium on soil samples for screening during site characterization
- Demonstrated at ORNL K-25 site and LANL in 1995
- Demonstrated at Disney/EPCOT center in 1996
- Demonstrated at Fernald in 1997 and 1998
- FY99 demonstration planned for Fernald and ORNL
- Demonstrated at ORNL K-25 site and LANL in 1995

Benefits:

- Assists in identification of uranium ´hot spots´ with real time characterization

Status:

- Technical contact: dibeneja@nv.doe.gov